

WE CLAIM AS OUR INVENTION

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Claims 2/2/01

~~Claims~~

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1. Pacer housing (60) comprising a connector means adapted to receive a contact plug (110) with contact surfaces (111, 118) on the proximal end of a lead (115) with an electrode located on the distal end of said lead, said housing preferably being made of metal, said connector means comprising a tubular member (20) having two ends (22, 23), said tubular member (20) being located inside said housing (60), a first end (23) of said tubular member (20) being welded or bonded to a first opening (62) in a wall of said housing (60), characterized in that said tubular member (20) comprises a tube (21) made of a metal being weldable or bondable to said housing (60), said tube (21) being structurally intact along its entire length, the second end (22) of said tube (21) being welded or bonded to a second opening (61) in said housing (60), all interior means (27, 28, 57, 58) in said tube contact the contact surfaces (111, 118) on said plug and are thus located within the enclosure formed by said tube (21) of metal, said metal tube (21) being provided with one or several lateral contact openings (24, 25) and with contact surfaces (27, 28) for establishing the contact to the interior of said housing, said contact surfaces (27, 28) being accessible through said openings (24, 25), said contact surfaces being electrically connected to contact means (57, 58) for contacting the contact surfaces (111, 118) on said plug (110).

2. Pacer housing according to claim 1, characterized in that said opening(s) (24, 25) are sealed by one or several insulating ceramic plugs (26) and said contact surfaces (27, 28), said ceramic plugs being soldered or bonded to said tube, said plugs holding said contact surfaces (27, 28) for contacting the interior of said housing.

3. Pacer housing according to claim 2, characterized in that said contact surfaces comprise metal rings (27, 28) that are

molded or bonded into the ceramic plugs (26), the outside of said ceramic plugs (26) being provided with openings (32, 33) coinciding with said lateral contact openings (24, 25) in said tube, thus giving access to said metal rings from the outside of said tube.

4. Pacer housing according to claim 3, characterized in that a central part of said metal rings (27, 28) is free from ceramic and provides a circumferential groove (30, 31) at the inside of said rings (27, 28) giving access to said metal rings from the inside of said tube.

5. Pacer housing according to any one of the preceding claims, characterized in that lead locking means (40) are located in said second end (22) of said tube (21), and means (48) for operating said lead locking means (40) are accessible from said second end (22) of said tube (21).

6. Pacer housing according to claim 5, characterized in that said lead locking means (40) are removable wholly or partly to give access to said contact plug (110).

AMENDED SHEET

Claims 2/21/08

-2-

Please cancel claims 1 - ⁶8 and substitute the following claims therefor:

- 7 ⁹ A pacemaker comprising:
- 5 a metallic housing having a first wall with a first opening therein and
a second wall with a second opening therein;
- 10 a metallic tubular member having a first tube end disposed in and
attached to said first opening and an opposite second tube end
disposed in and attached to said second opening, said tubular
member being substantially continuous between said first tube
end and said second tube end; and
- a plurality of interior components disposed within said tubular
member adapted to make electrical contact with contact
surfaces of a contact plug adapted for insertion into said
tubular member.

8 ¹⁰ A pacemaker as claimed in claim ⁷9 wherein said first and
15 second tube ends are respectively bonded to said metallic housing at said
first and second openings.

9 ¹¹ A pacemaker as claimed in claim ⁷9 wherein said first and
second tube ends are respectively welded to said metallic housing at said
first and second openings.

10 ¹² A pacemaker as claimed in claim ⁷9 wherein said metallic
20 tubular member has at least one lateral opening therein, and having a
contact surface disposed in said opening for establishing electrical contact
between the interior of said metallic tubular member and an exterior of said
metallic tubular member, said contact surface being electrically connected
25 to at least one of said interior components.

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¹¹~~13~~. A pacemaker as claimed in claim ~~12~~¹⁰ further comprising an insulating ceramic plug disposed in and closing said opening, said ceramic plug being mechanically attached in said opening and holding said contact surface in said opening.

5 ¹²~~14~~. A pacemaker as claimed in claim ~~13~~ wherein said ceramic plug is soldered in said opening.

¹³~~15~~. A pacemaker as claimed in claim ~~13~~ wherein said ceramic plug is bonded in said opening.

10 ¹⁴~~16~~. A pacemaker as claimed in claim ~~13~~ wherein said contact surface is a metallic ring and wherein said ceramic plug has an exterior with a lateral opening therein in registry with said lateral opening in said metallic tubular member allowing access to said ring from said exterior of said metallic tubular member.

15 ¹⁵~~17~~. A pacemaker as claimed in claim ~~16~~¹⁴ wherein said metal ring has a central portion which is free of ceramic of said ceramic plug, producing a peripheral groove at an interior of said ring allowing access to said ring from said interior of said metallic tubular member.

20 ¹⁶~~18~~. A pacemaker as claimed in claim ~~17~~¹⁶ further comprising a locking arrangement disposed at said second tube end, and accessible from said second tube end, adapted for locking an end of an electrode lead in said metallic tubular member.

¹⁷~~19~~. A pacemaker as claimed in claim ~~18~~¹⁶ wherein said locking arrangement is at least partially removable from said metallic tubular member to allow access to said end of said electrode lead.

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1/8/03

IN THE UNITED STATES PATENT AND TRADEMARK OFFICE

AMENDMENT "B"

APPLICANTS: Paul BRAND et al. GROUP ART UNIT: 3762
SERIAL NO.: 09/763,387 EXAMINER: F. P. Oropeza
FILED: April 18, 2001 CONFIRMATION NO.: 5055
TITLE: "PACEMAKER HOUSING WITH LEAD CONNECTION
ASSEMBLY"

9/1/03
1-9-3

Assistant Commissioner for Patents,
Washington, D.C. 20231

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S I R:

In response to the Office Action dated December 12, 2002, Applicants herewith amend the application as follows.

IN THE CLAIMS

The claims as set forth below embody the Examiner's re-numbering, with which Applicants agree.

Claim 8 has been amended as follows:

8. (Amended) A pacemaker as claimed in claim 7 wherein said first and second tube ends are respectively bonded to said metallic housing at said first and second openings.

Claim 9 has been amended as follows:

9. (Amended) A pacemaker as claimed in claim 7 wherein said first and second tube ends are respectively welded to said metallic housing at said first and second openings.

Claim 10 has been amended as follows:

10. (Amended) A pacemaker as claimed in claim 7 wherein said metallic tubular member has at least one lateral opening therein, and having a contact surface disposed in said lateral opening for establishing electrical contact between the interior of said metallic tubular member and an exterior of said metallic tubular member, said contact surface being electrically connected to at least one of said interior components.

(Claim 11 has been amended as follows:)

11. (Amended) A pacemaker as claimed in claim 10 further comprising an insulating ceramic plug disposed in and closing said lateral opening, said ceramic plug being mechanically attached in said lateral opening and holding said contact surface in said opening.

(Claim 12 has been amended as follows:)

12. (Amended) A pacemaker as claimed in claim 11 wherein said ceramic plug is soldered in said lateral opening.

(Claim 13 has been amended as follows:)

13. (Amended) A pacemaker as claimed in claim 11 wherein said ceramic plug is bonded in said lateral opening.

(Claim 14 has been amended as follows:)

14. (Amended) A pacemaker as claimed in claim 11 wherein said contact surface is a metallic ring and wherein said ceramic plug has an exterior with a lateral opening therein in registry with said lateral opening in said metallic tubular member allowing access to said ring from said exterior of said metallic tubular member.

(Claim 15 has been amended as follows:)

15. (Amended) A pacemaker as claimed in claim 14 wherein said metal ring has a central portion which is free of ceramic of said ceramic plug, producing a peripheral groove at an interior of said ring allowing access to said ring from said interior of said metallic tubular member.

Claim 16 has been amended as follows:

16. (Amended) A pacemaker as claimed in claim 7 further comprising a locking arrangement disposed at said second tube end, and accessible from said second tube end, adapted for locking an end of an electrode lead in said metallic tubular member.

Claim 17 has been amended as follows:

17. (Amended) A pacemaker as claimed in claim 16 wherein said locking arrangement is at least partially removable from said metallic tubular member to allow access to said end of said electrode lead.

IN THE DRAWINGS:

Figures 1 and 2 have been amended as shown on the drawing copy marked in red attached to the Request For Approval of Drawing Changes filed simultaneously herewith.